Appendix E: Potential Wetland Restoration Site GIS Attributes

I-405 North Renton – September, 2003

The purpose of this potential wetland restoration coverage is to provide an initial list of candidate sites for mitigating transportation project impacts. A sample set of photo interpreted sites were field verified during photo interpretation. All potential wetland restoration sites identified in this data set will require site-specific field verification to ensure accuracy before being used in lists of potential mitigation sites.

Potential wetland restoration sites differ from existing wetland sites. Potential wetland restoration sites identify the existing wetland area and an additional historical wetland area, now upland due to human alteration, that can be reestablished through restoration actions. Potential wetland restoration sites were identified using available data and aerial photo interpretation. Existing wetland data used in the identification of potential wetland restoration sites include the King County critical areas wetland coverage, National Wetland Inventory (NWI) data, Washington State Department of Natural Resources (DNR) 1:24,000 hydrography, Washington State Department of Fish and Wildlife Priority Habitats and Species data, David Evans and Associates (DEA) wetland data, City of Bellevue wetland inventory data, and Washington State Department of Natural Resources soils coverage. All existing wetland inventories were overlaid in a priority order based on assumed accuracy using ArcView. When wetlands were identified on more than one wetland inventory, the polygon of the site in the inventory with the highest assumed accuracy was used to identify the location and extent of the potential wetland. This combined wetland shape file was then overlaid onto hydric soils to identify the most probable location of current and historic wetlands and was used as a starting point when identifying potential wetland restoration sites. All potential wetland restoration sites were photo interpreted using 1:12,000 color stereo-paired aerial photos taken in July, August, and September of 2001.

Existing polygons from available wetland inventories were used to establish the location and extent of potential wetland restoration sites when appropriate. When the photo interpreter estimated that the location and extent of the potential wetland restoration site was substantially different (> 25-50% error) than that of the existing wetland polygon, the polygon was modified to more accurately reflect location and extent of the potential wetland restoration site.

The following four attributes were developed by King County as part of their critical areas ordinance wetland coverage. It is assumed that this King County wetland data represents the best wetland source data available. When multiple data sources identified a wetland site, the King County data was used to establish the site's location and extent, as well as providing the following data associated with each polygon.

Kcwetld_id

Originally "wetld_id," this attribute is the unique identifier for King County wetland inventory data.

Kc_acres

Originally "acreage," this attribute represents the area of a King county wetland polygon.

Kc_rating

Originally "rating_no," this attribute is undefined in King County meta data. Choices are 1-4 and no number.

The following four attributes were developed by and extracted from the US Fish and Wildlife Service as part of their National Wetland Inventory data. It is assumed that this US Fish and Wildlife Service data represents the second best wetland source data available. When King County wetland data did not identify a polygon at a site and the National Wetland Inventory did, the NWI polygon was used and following data attributes were populated.

Nwi_sysid

Originally "system_id," this attribute is used to identify unique polygons in the National Wetland Inventory data set.

Nwi_acres

Developed using "Nwi_sqm," this attribute represents the area of each National Wetland Inventory polygon.

Nwi_class

Originally "class," this attribute represents the wetland classification code of each National Wetland Inventory polygon.

The following three attributes were developed and extracted from the Washington State Department of Natural Resources hydrography coverage. It is assumed that this US Fish and Wildlife Service data represents the third best wetland source data available. When King County wetland and NWI data did not identify a polygon at a site and DNR hydrography did, the DNR polygon was used and following data attributes were populated.

Wbws8_id

Originally "wbws8_id", this attribute represents the unique identifier in the Washington State Department of Natural Resources hydrography data set for Water Resource Inventory Area 8.

Wbws9_id

Originally "wbws9_id", this attribute represents the unique identifier in the Washington State Department of Natural Resources hydrography data set for Water Resource Inventory Area 9.

Dnr_wbtyp

Originally "wtr.bdy.ty", this attribute is a numeric code indicating water body type from the Washington State Department of Natural Resources meta data.

The following four attributes were developed and extracted from the Washington State Department of Fish and Wildlife Priority Habitats and Species coverage. It is assumed that this Priority Habitats and Species data represents the fourth best wetland source data available. When King County wetland, NWI, and DNR data did not identify a polygon at a site and PHS did, the PHS polygon was used and following data attributes were populated.

Phs_wet_pl

Originally "phs_wet_pl#", this attribute represents a unique identification number used in the Washington State Department of Fish and Wildlife Priority Habitats and Species data set.

Phs_sitnam

Originally "sitename", this attribute represents a site name as identified in the Washington State Department of Fish and Wildlife Priority Habitats and Species data set.

Phs_descry

Originally "gendes1", this attribute represents a general description of the site as identified in the Washington State Department of Fish and Wildlife Priority Habitats and Species data set.

The following four attributes were developed and extracted from the David Evans and Associates wetland coverage. It is assumed that this DEA data represents the fifth best wetland source data available. When other data sources did not identify a polygon at a site and DEA did, the DEA polygon was used and following data attributes were populated.

Dea_class

This attribute is the initial David Evans and Associates classification/rating of high, low or unknown.

New_dea_cl

This attribute is the new David Evans and Associates classification/rating of high, low or unknown.

Dea_uniqid

Originally "orig.unique_id" this attributes represents the unique identifier for the David Evans and Associates wetland data set.

The following attributes were populated from aerial photo interpretation specifically for this watershed characterization work. This data represents supplemental information to that developed and compiled in other available wetland inventories.

Potwet

This attribute represents the photo interpreter's opinion of the sites potential to be either an existing wetland or a historical wetland area that has restoration potential.

Y - site is an existing wetland or has restoration potential
N - site is not and existing wetland and has no restoration potential due to site or surrounding human land use/alteration.

Wclass

This attribute represents the photo interpreter's opinion of the hydrogeomorphic wetland classification under existing site conditions.

HGM Code	Hydrogeomorphic Type	General Description
RI	Riverine Impounding	Topographic depressions on a valley bottom
RF	Riverine Flow-through	Wetland systems associated with rivers and streams where water tends to flow through rather than pond
DC	Depressional Closed	Topographic depressions outside of valley bottoms having no surface water connection to a stream
DF	Depressional Flow-through	Topographic depressions outside of valley bottoms having a surface water connection to a stream
LF	Lacustrine Fringe	Wetlands occurring at the margins of deepwater lakes
LC	Lacustrine Open Water Lake	A lake system >20 acres in area and >2 meters deep
SL	Slope Wetland	Wetlands occurring on a slope where water tends to sheet flow through
UN	Unknown	Unable to determine HGM type from photos
NW	Non-wetland	Site is upland area

Pclass

This attribute represents the photo interpreter's opinion of the potential hydrogeomorphic wetland classification of the site once restored. HGM codes used to determine *Wclass*, above, were also used in determining *Pclass*.

Hydro_alt

This attribute represents the photo interpreter's opinion of the extent of human induced hydrologic alteration for the site based on photo interpretation and available locally developed information.

0 – no/minimal hydrologic alteration
1 – some hydrologic alteration evident but portions of the site appear to be providing reasonable levels of wetland functions
2 – extensive hydrologic alteration is evident from surface drains, sub-surface tile, filling or is presumed to exist due to current human land uses

Vg_alt

This attribute represents the photo interpreter's opinion of the extent of human induced vegetative alteration for the site based on photo interpretation and available locally developed information.

0 – no/minimal vegetative alteration
1 – some vegetative alteration/clearing is evident from aerial photos
2 – extensive vegetative alteration/clearing is evident from aerial photos

SLU

This attribute represents the photo interpreter's evaluation of the general type of land use that surrounds the potential wetland site. Land use codes used in this attribute include:

Land Use Code	Land Use Type
res	Residential
par	Park/Open Space
for	Forest
com	Commercial/Business
ind	Industrial
agr	Agriculture

Prsrv

This attribute identifies high quality, high value existing wetlands that, in the photo interpreter's opinion, warrant consideration for preservation status, based on photo interpretation. Sites identified in this attribute are either high quality sites located in a forested area with minimal risk of degradation from human development or high quality sites that have some human alteration but appear to be of such high value, even if degraded, that they warrant preservation and restoration status.

1 – site warrants consideration as a preservation site

Old_acres

This is an ArcView generated area measurement, in acres, developed from existing electronic wetland inventories. This measurement represents the area of a polygon identified on an existing wetland inventory and may not represent to area of the polygon in this potential wetland data set.

Nu_acres

This is an ArcView generated area measurement, in acres, developed from the photo interpretation of wetland and potential wetland signatures using July, 2001, 1:12,000 color stereo paired aerial photos. This attribute represents the area of each polygon in the potential wetland data set developed by Washington State Department of Transportation.

Notes2

This column provides notes from the photo interpreter regarding site observations when compiling information from aerial photos. Many of the notes relate to the type or extent of site degradation.

Wtland_id

This is a unique identification number assigned to each potential wetland restoration polygon in the data set.

Dau_code

This is a unique number that identifies the Drainage Analysis Unit (DAU) that the potential wetland restoration site occurs in. Multiple DAU numbers are possible in this attribute field when a potential wetland restoration site occurs at the divide of two or more DAUs. A total of 119 DAUs exist in the study area.

Drainage

This identifies the larger stream/river system that the potential wetland restoration site occurs in. Drainage areas include:

Cedar River
Coal Creek
May Creek
Kennydale
Lakehurst
North Renton/Johns Creek